Question Paper Code	12014

1 7 JUL 2023

M.E. / M.Tech. - DEGREE EXAMINATIONS, APRIL/MAY 2023
Second Semester
M.E. - CAD/CAM
20PCDEL210 - METROLOGY AND NON DESTRUCTIVE TESTING
(Regulations 2020)

Duration: 3 Hours 　　　　　　　　　　　　　　　　　　　Max. Marks: 100

PART - A (10 × 2 = 20 Marks)
Answer ALL Questions

		Marks, K-Level, CO
1.	Define Actual size.	2,K1,CO1
2.	Compare CMM and UMM.	2,K2,CO1
3.	List the types of control charts.	2,K1,CO2
4.	Define FMEA.	2,K1,CO2
5.	Write the principle of liquid penetrant testing.	2,K1,CO3
6.	Define capillary action.	2,K1,CO3
7.	Define Fluoroscopy.	2,K1,CO4
8.	What is meant by Film density?	2,K1,CO4
9.	What is ultrasonic testing?	2,K1,CO4
10.	List the properties of Acoustic waves.	2,K1,CO5

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

11.	a)	Describe briefly about tool makers microscope with the neat sketch.	13,K2,CO1
		OR	
	b)	With the help of block diagram explain in detail on measurement systems.	13,K2,CO1
12.	a)	Explain briefly about the different statistical measuring tools.	13,K2,CO2
		OR	
	b)	Explain in detail on ABC standard and its importance.	13,K2,CO2
13.	a)	Explain in detail about the following (i) Surface preparation methods. (ii) Excess penetration removal methods	13,K2,CO3

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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OR

b) Explain about various steps involved in Magnetic particle inspection process with suitable flow diagram. *13,K2,CO3*

14. a) Illustrate the components of X-ray generator with suitable sketch. *13,K2,CO4*

OR

b) Explain about Computed Radiography with suitable sketch. *13,K2,CO4*

15. a) Illustrate with neat sketch about the following: *13,K2,CO5*
   (i) A-scan (ii) C-scan (iii) B-scan

OR

b) Discuss the following Ultrasonic inspection technique with neat sketch. *13,K2,CO5*
   (i) Straight beam ultrasonic inspection method.
   (ii) Angle beam ultrasonic inspection method.

PART - C (1 × 15 = 15 Marks)

16. a) Identify the method used to inspect Pipe and piston head component and explain the steps involved during inspection. *15,K2,CO3*

OR

b) How X-rays are produced in radiographic testing? Briefly write about any two methods of X-ray production. *15,K2,CO4*